1. (currently amended) In a communications receiver having a decision feedback equalizer filter including filter coefficients, said communications receiver responsive to a received signal, said communications receiver further having an input filter responsive to said received signal to form soft decision samples corresponding to said received signal, and a slicer responsive to said received signal to form hard decision samples corresponding to said received signal, said soft decision samples and said hard decision samples comprising a series of individual signal samples, a method for operating said decision feedback equalizer filter comprising:

operating said decision feedback equalizer filter in a first mode by coupling said soft decision samples to said decision feedback equalizer filter;

operating said decision feedback equalizer filter in a second mode by coupling said hard decision samples to said decision feedback equalizer filter; ~~and~~

operating said decision feedback equalizer in said first mode during a signal acquisition period;

operating said decision feedback equalizer in said second mode during a signal tracking period;

switching from said second mode to said first mode responsive to a first individual signal sample; and

switching back from said first mode to said second mode responsive to a second individual signal sample,

whereby said decision feedback equalizer filter is switched between said first and second modes on an individual sample by sample basis.

~~switching between first and second modes responsive to a single individual signal sample.~~

2. (currently amended) A method in accordance with claim 1, wherein said steps of switching between first and second modes on an individual sample by sample basis ~~on an individual signal sample basis~~ comprise switching between said first and second modes in accordance with the quality of said first and second ~~single~~ individual signal samples, said steps comprising:

measuring the quality level of said first ~~single~~ individual signal sample;

measuring the quality level of said second individual signal sample;

coupling an individual one of said soft decision samples to said decision feedback equalizer filter when said quality of said first ~~single~~ individual signal sample is at a first quality level; and

coupling an individual one of said hard decision samples to said decision feedback equalizer filter when said quality of said second ~~single~~ individual signal sample is at a second quality level,

wherein said second quality level is greater than said first quality level.

3. (currently amended) A method in accordance with claim 2, wherein said signal samples are represented as constellation points in a plane, and wherein said first ~~single~~ individual signal sample is at a first quality level when outside a box of width w, said box of width w being centered about the origin of said complex plane, and said second ~~single~~ individual signal sample is at a second quality level when inside said box of width w, centered about the origin of said complex plane.

4. (currently amended) A method in accordance with claim 2, wherein said signal samples are represented as constellation points in a complex plane, and wherein said first ~~single~~ individual signal sample is at a first quality level when outside a box of width w, said box of width w being centered about the origin of said complex plane, and said second ~~single~~ individual signal sample is at a second quality level when inside said box of width w, centered about the origin of said complex plane and the least means square error of said second ~~single~~ individual signal sample is below a threshold t.

5. (original) A method in accordance with claim 4, wherein said threshold t is represented as a reliability area comprising a circle in said complex plane.

6. (original) A method in accordance with claim 4, wherein said threshold t is represented as a reliability area comprising a box in said complex plane.

7. (original) A method in accordance with claim 3, wherein the width w of said box is adaptive based on the qualities of a block of past signal samples.

8. (original) A method in accordance with claim 4, wherein said threshold t is adaptive based on the qualities of a block of past signal samples.

9. (currently amended) A method in accordance with claim 1, wherein said first mode is a signal acquisition mode using said soft decision samples and the constant modulus algorithm to update ~~the~~said ~~error terms~~filter coefficients of said feedback equalizer filter.

10. (currently amended) A method in accordance with claim 1, wherein said second mode is a signal tracking mode using said hard decision samples and the least means squared algorithm to update ~~the~~said ~~error terms~~filter coefficients of said feedback equalizer filter.

~~11.~~ (currently amended) In a communications receiver having a decision feedback equalizer filter including filter coefficients, said communications receiver responsive to a received signal, said communications receiver further having an input filter responsive to said received signal to form soft decision samples corresponding to said received signal, and a slicer responsive to said received signal to form hard decision samples

corresponding to said received signal, said soft decision samples and said hard decision samples comprising a series of individual signal samples, a decision feedback equalizer filter arrangement comprising:

a first switch operable ~~responsive to~~in a first mode, to couple said decision feedback equalizer filter to said soft decision samples during a signal acquisition period, said first switch further operable ~~responsive to~~in a second mode, to couple said decision feedback equalizer filter to said hard decision samples during a signal tracking period; and

a switch control responsive to a first ~~single~~ individual signal sample to operate said first switch from said second mode to said first mode, and responsive to a second individual signal sample to operate said first switch from said first mode to said second mode, ~~to select one of said first and second modes~~

whereby said decision feedback equalizer filter is switched between said first and second modes on an individual sample by sample basis.

12. (currently amended) ~~An apparatus~~A communications receiver in accordance with claim 11, wherein said decision feedback equalizer filter is operated in said first and second modes in accordance with the quality of said first and second ~~single~~ individual signal samples, said decision feedback equalizer filter mode being operated in said first mode by said switch control when said quality of said first ~~single~~ individual signal sample is at a first quality level, said decision feedback equalizer filter mode being

operated in said second mode by said switch control when said quality of said second ~~single~~ individual signal sample is at a second quality level, wherein said second quality level is greater than said first quality level.

13. (currently amended) ~~An apparatus~~A communications receiver in accordance with claim 12, wherein said signal samples are represented as constellation points in a complex plane, and wherein said first ~~single~~ individual signal sample is at a first quality level when outside a box of width w, said box of width w being centered about the origin of said complex plane, and said second ~~single~~ individual signal sample is at a second quality level when inside said box of width w, centered about the origin of said complex plane.

14. (currently amended) ~~An apparatus~~A communications receiver in accordance with claim 12, wherein said signal samples are represented as constellation points in a complex plane, and wherein said first ~~single~~ individual signal sample is at a first quality level when outside a box of width w, said box of width w being centered about the origin of said complex plane, and said second ~~single~~ individual signal sample is at a second quality level when inside said box of width w, centered about the origin of said complex plane and the least means square error of said second ~~single~~ individual signal sample is below a threshold t.

15. (currently amended) ~~An apparatus~~A communications receiver in accordance with ~~claim 4~~claim 14, wherein said threshold t is represented as a reliability area comprising a circle in said complex plane.

16. (currently amended) ~~An apparatus~~A communications receiver in accordance with ~~claim 4~~claim 14, wherein said threshold t is represented as a reliability area comprising a box in said complex plane.

17. (currently amended) ~~An apparatus~~A communications receiver in accordance with claim 13, wherein the width w of said box is adaptive based on the qualities of a block of past signal samples.

18. (currently amended) ~~An apparatus~~A communications receiver in accordance with claim 14, wherein said threshold t is adaptive based on the qualities of a block of past signal samples.

19. (currently amended) ~~An apparatus~~A communications receiver in accordance with claim 11, wherein said first mode is a signal acquisition mode using said soft decision samples and the constant modulus algorithm to update ~~the~~said ~~error terms~~filter coefficients of said feedback equalizer filter.

20. (currently amended) ~~An apparatus~~A communications receiver in accordance with claim 11, wherein said second mode is a signal tracking mode using said hard decision

samples and ~~the~~ least means squared algorithm to update ~~the~~said ~~error terms~~filter coefficients of said feedback equalizer filter.

21. (currently amended) In a communications receiver having a decision feedback equalizer filter including filter coefficients, said communications receiver responsive to a received signal, said communications receiver further having an input filter responsive to said received signal to form soft decision samples corresponding to said received signal, and a slicer responsive to said received signal to form hard decision samples corresponding to said received signal, said soft decision samples and said hard decision samples comprising a series of individual signal samples, an apparatus for operating said decision feedback equalizer filter comprising:

means for operating said decision feedback equalizer filter in a first mode by coupling said soft decision samples to said decision feedback equalizer filter;

means for operating said decision feedback equalizer filter in a second mode by coupling said hard decision samples to said decision feedback equalizer filter; ~~and~~

means for operating said decision feedback equalizer in said first mode during a signal acquisition period;

means for operating said decision feedback equalizer in said second mode during a signal tracking period;

means for switching from said second mode to said first mode responsive to a first individual signal sample; and

means for switching back from said first mode to said second mode responsive to a second individual signal sample,

whereby said decision feedback equalizer filter is switched between said first and second modes on an individual sample by sample basis.

~~means for switching between first and second modes responsive to a single individual signal sample.~~

22. (currently amended) A communications receiver ~~An apparatus~~ in accordance with claim 21, wherein said soft decision samples are stored in said decision feedback equalizer filter in said first mode and used to adapt ~~the parameters~~said filter coefficients of said decision feedback equalizer filter using a first adaptation algorithm.

23. (currently amended) A communications receiver~~An apparatus~~ in accordance with claim 22, wherein said first adaptation algorithm is a Constant Modulus Algorithm.

24. (currently amended) A communications receiver~~An apparatus~~ in accordance with claim 22, wherein said first adaptation algorithm is a Least Mean Squares Algorithm.

25. (currently amended) A communications receiver~~An apparatus~~ in accordance with claim ~~1~~21, wherein said hard decision samples are stored in said decision feedback equalizer filter in said second mode and used to adapt ~~the parameters~~said filter coefficients of said decision feedback equalizer filter using a second adaptation algorithm.

26. (currently amended) A communications receiver~~An apparatus~~ in accordance with claim 25, wherein said second adaptation algorithm is a Constant Modulus Algorithm.

27. (currently amended) A communications receiver~~An apparatus~~ in accordance with claim 25, wherein said second adaptation algorithm is a Least Mean Squares Algorithm.

28. (currently amended) A communications receiver~~An apparatus~~ in accordance with claim 21, wherein,

said soft decision samples are stored in said decision feedback equalizer filter in said first mode and used to adapt ~~the parameters~~said filter coefficients of said decision feedback equalizer filter using a first adaptation algorithm;

said hard decision samples are stored in said decision feedback equalizer filter in said second mode and used to adapt ~~the parameters~~said filter coefficients of said decision feedback equalizer filter using a second adaptation algorithm; and

said first adaptation algorithm is a Constant Modulus Algorithm, and said second adaptation algorithm is a Least Mean Squares Algorithm.

29. (currently amended) A method in accordance with claim 1, wherein said soft decision samples are stored in said decision feedback equalizer filter in said first mode and used to adapt ~~the parameters~~said filter coefficients of said decision feedback equalizer filter using a first adaptation algorithm.

30. (original) A method in accordance with claim 29, wherein said first adaptation algorithm is a Constant Modulus Algorithm.

31. (original) A method in accordance with claim 29, wherein said first adaptation algorithm is a Least Mean Squares Algorithm.

32. (currently amended) A method in accordance with claim 1, wherein said hard decision samples are stored in said decision feedback equalizer filter in said second mode and used to adapt ~~the parameters~~said filter coefficients of said decision feedback equalizer filter using a second adaptation algorithm.

33. (original) A method in accordance with claim 32, wherein said second adaptation algorithm is a Constant Modulus Algorithm.

34. (original) A method in accordance with claim 32, wherein said second adaptation algorithm is a Least Mean Squares Algorithm.

35. (currently amended) A method in accordance with claim 1, wherein,

said soft decision samples are stored in said decision feedback equalizer filter in said first mode and used to adapt ~~the parameters~~said filter coefficients of said decision feedback equalizer filter using a first adaptation algorithm;

said hard decision samples are stored in said decision feedback equalizer filter in said second mode and used to adapt ~~the parameters~~said filter coefficients of said decision feedback equalizer filter using a second adaptation algorithm; and

said first adaptation algorithm is a Constant Modulus Algorithm, and said second adaptation algorithm is a Least Mean Squares Algorithm.